



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,870	08/05/2003	Robert Francis Squibbs	B-5189 621138-2	8940

7590 01/18/2007
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

PATEL, KAUSHIKKUMAR M

ART UNIT	PAPER NUMBER
----------	--------------

2188

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/635,870	Applicant(s) SQUIBBS, ROBERT FRANCIS	
	Examiner Kaushikkumar Patel	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7-9,11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,8,11,13-15,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 9,16 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to applicant's communication filed December 12, 2006 in response to PTO office action mailed August 10, 2006. The applicant's remarks and amendments to claims were considered with the results that follow.
2. In response to the last office action, claims 1, 3-5, 7, 9, 11, 13-17 and 19 have been amended. Claim 12 has been canceled. No new claims have been added. As a result, claims 1, 3-5, 7-9, 11 and 13-19 remain pending in this application.
3. The objections and rejection of claims under 35 U.S.C. 112, second paragraph has been withdrawn in response to applicant's remarks and amendments filed on December 12, 2006.

Response to Arguments

4. Applicant's arguments filed December 12, 2006 with respect to claims 1 and 11 have been fully considered but they are not persuasive.
5. Applicant argues that Singh does not teach degrading the received item upon predetermined condition concerning the received item and/or the mobile device becoming satisfied. Examiner is not persuaded. Examiner is entitled to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) "During patent examination the pending claims must be interpreted as broadly as their terms

Art Unit: 2188

reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process." Limitations appearing in the specification but not recited in the claim should not be read into claims, claims must be interpreted "in view of specification" without importing limitations from the specification into the claims unnecessarily). In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). In this case Singh teaches a cache is partition into two portions and one portion stores uncompressed data and the other portion stores compressed data (Singh, col. 3, lines 4-8). Thus, initially when data is loaded it is stored in uncompressed portion in uncompressed form. The concept of least recently used (LRU) is well known in the art, i.e. when there is not enough space to store incoming data, the previously received data (item) from the cache is evicted to make a room for newly received data, the selection of evicting previously received data is done based on when the previously received item becomes LRU in the cache (the item becoming LRU is interpreted is the predetermined condition concerning the (previously) received item). Thus, Singh teaches "the predetermined condition concerning the item" limitation. Applicant further argues that Singh teaches compressing data in every time the data item is added to L3. The examiner is not persuaded. It is well known to the person having ordinary skill in the art that the cache line is evicted (compressed, in case of Singh), when there is not enough space to put

Art Unit: 2188

the new data (not every time as applicant argues) and previously stored data item, which became LRU is selected for eviction (for compression, in case of Singh), so Singh teaches the limitation, the data item received is initially stored in un-graded form in L3 partition (the cache is portioned into two regions, as explained above) and then when new data item is received and if there is not enough space to stored newly received item in the L3, the previously saved data item, which became LRU (predetermined condition concerning the item) is selected for compression and stored in L4 partition (L4 is also a part of single cache). Applicant further argues that Singh dose not teach condition of mobile device becoming satisfied. Examiner is not persuaded. As explained above, the broadest reasonable interpretation of claim language “a predetermined condition concerning the item and/or the mobile device becoming satisfied” does not require the later condition to be true.

6. Thus, the rejections of claims are maintained and reiterated below for applicant's convenience (the claims are amended to overcome rejection under 35 U.S.C. 112, second paragraph, and thus the scope of the claims remains same as previous office action).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4-5, 8, 11, 14-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and further in view of Singh et al. (US 6,324,621 B2).

As per claim 1, Mathews (or Hakala) teaches a method of managing a cache of a mobile device carried by a user, the cache being used for storing items associated with the locations in real-world space being visited by the user (see Mathews, par. [0003] and [0015], or Hakala, abstract, fig.2, item 260);

(a) receiving an item at the mobile device and initially storing it in an un-degraded form (Mathews, par. [0044] or Hakala, col. 10, line 24, Mathews and Hakala does not teach degrading the cached item inherently teaches initially storing item in an un-degraded form);

Mathews and Hakala fails to teach degrading the item stored in cache. Singh teaches cache system (fig. 1, item 12) with un-degraded and degraded form (col. 3, lines 6-8) and he further teaches upon a predetermined condition degrading the item and storing item in cache (Singh teaches LRU and compression weighted replacement, where victim cache line from uncompressed partition is compressed and stored in compressed partition, col. 3, lines 39-50, col. 4, lines 20-25, Singh further teaches storing prefetched data in uncompressed form (col. 6, lines 60-63), the previously stored item becoming LRU is interpreted as predetermined condition concerning the item).

It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize compression and decompression of cache lines as taught by

Art Unit: 2188

Singh in the system of Mathews (Hakala) in order to improve cache's size and performance of the system (see Singh, col. 2, lines 17-19).

As per claim 4, Singh teaches replacing (compressing) a victim cache lines using least recently use (LRU) method (col. 3, lines 42-43, col. 4, lines 20-23). The LRU algorithm tracks the items in the cache and removes (compress as per Singh) the item from cache if the item is not accessed since some time, which inherently teaches degrading item based on time elapsed.

As per claim 5, Singh teaches compressing victim cache line as explained with respect claims 1 and 4 above. The victim cache line is compressed to accommodate a new line fetched from secondary storage, which inherently teaches that there is no space left in the cache and requires data compression.

As per claim 8, Singh teaches cache directory, which keeps track of compressed and uncompressed data and further teaches changing status of the block from uncompressed to compressed form (col. 3, lines 30-39, lines 54-58). Keeping track of status (compressed or uncompressed) of the block inherently teaches a flag (or marker) associated with the cache line.

Claims 11, 14-15 and 18 are also rejected under same rationales as applied to claims 1, 4-5 and 8 above. As Mathews teaches means for storing items associated with real world items and receiving means for receiving an item at the mobile device (par. [0017], [0035]).

Art Unit: 2188

9. Claims 3 and 13 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and Singh et al. (US 6,324,621 B2).

As per claims 3 and 13, Halaka (Mathews) and Singh teach limitations of claims 1 and 11 above, but fail to teach degrading the item based on probability usage of item with respect to user's progress around the space. Halaka teaches caching items based on user's progress, current location and predicted path (col. 10, lines 24-44). The predictive caching as taught by Halaka inherently means that the data cached ahead of time before user's need has high probability of being accessed within near future. Also as admitted by applicant, caches are of finite size and during the progress of user in physical space there will be a time when cache will be full and require evicting some data from cache to make a space for new incoming data, so it would have been obvious to one having ordinary skill in the art at the time of the invention to degrade the data from cache (as taught by Singh in the system of Halaka with respect to claim 1 above) with the least usage probability (LRU) of the item as user progress through the physical space of Halaka to make a space for new incoming predictive data.

10. Claims 7 and 17 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Mathews et al. (US 2003/0060973 A1) (or Hakala et al. (US 6,452,544 B1)) and Singh et al. (US 6,324,621 B2) as applied to claim 1, 11 above and further in view of Chen (US 2003/0115042).

As per claims 7 and 17, the combination of Mathews (Halaka) and Singh fails to teach limitation set forth in claims 7 and 17. Chen teaches a method effecting the degradation of the item comprising a sampled media stream by reducing sample rate (Chen par. [0010], teaches compression reducing the bit-rate).

It would have been obvious to one having ordinary skill in the art at the time of the invention to combine Chen with Mathews (Halaka) and Singh, since this feature of Chen allows for cheaper bit storage and when combined reduces the overall cost of the methods and apparatus of Mathews and Singh (Chen par. 10, lines 1-4).

Allowable Subject Matter

11. Claims 9, 16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2188

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

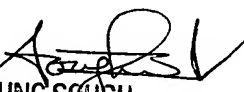
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kaushikkumar Patel
Examiner
Art Unit 2188


kmp


HYUNG SOUGH
SUPERVISORY PATENT EXAMINER
1-12-07